

Claims

- [c1] A process for preparing an aryl iodide compound, comprising:
- reacting an aryl halide compound with a metal iodide, a metal catalyst and a catalyst coordinating ligand in at least one solvent to form an aryl iodide; and
 - purifying the aryl iodide;
- wherein the solvent is heated to reflux during the reacting; wherein an aryl iodide yield of at least about 75 % is obtained; and wherein the aryl iodide has a purity of at least 90 %.
- [c2] The process according to claim 1, wherein the aryl halide is selected from the group consisting of aryl bromides and aryl chlorides.
- [c3] The process according to claim 1, wherein the aryl halide is selected from the group consisting of substituted and unsubstituted benzyl halides, cyclopentadienyl halides, biphenyl halides, terphenyl halides tolyl halides, naphthyl halides, anthryl halides, phenanthryl halides, pyryl halides, and fluorenyl halides.
- [c4] The process according to claim 1, wherein the metal io-

dide is sodium iodide.

- [c5] The process according to claim 1, wherein a molar ratio of the metal iodide to the aryl halide is in a range from about 1:1 to about 10:1.
- [c6] The process according to claim 1, wherein a molar ratio of the metal iodide to the aryl halide is in a range from about 2:1 to about 5:1.
- [c7] The process according to claim 1, wherein the metal catalyst is a copper catalyst.
- [c8] The process according to claim 1, wherein the metal catalyst is present in an amount of from about 2 mole % to about 10 mole % with respect to an amount of aryl halide.
- [c9] The process according to claim 1, wherein the metal catalyst is present in an amount of about 5 mole % with respect to an amount of aryl halide.
- [c10] The process according to claim 1, wherein the catalyst coordinating ligand is a diamine ligand.
- [c11] The process according to claim 1, wherein the catalyst coordinating ligand is 1,3-propanediamine.
- [c12] The process according to claim 1, wherein the catalyst

coordinating ligand is present in an amount of from about 1 mole % to about 50 mole % with respect to an amount of aryl halide.

[c13] The process according to claim 1, wherein the catalyst coordinating ligand is present in an amount of from about 2 mole % to about 25 mole % with respect to an amount of aryl halide.

[c14] The process according to claim 1, wherein the at least one solvent is selected from the group consisting of tetrahydrofuran, dioxane, xylene, alcohols, and mixtures thereof.

[c15] The process according to claim 1, wherein the at least one solvent is selected from the group consisting of n-butanol, n-pentanol, n-hexanol, n-heptanol and mixtures thereof.

[c16] The process according to claim 1, wherein the solvent is heated to reflux at a temperature of at least about 100°C.

[c17] The process according to claim 1, wherein the purifying is performed by recrystallization.

[c18] An aryl iodide compound prepared by:
reacting an aryl halide compound in at least one sol-

vent with a metal iodide, a metal catalyst and a catalyst coordinating ligand; and
purifying the reaction product;
wherein the solvent is heated to reflux during the reacting the aryl halide compound; wherein an aryl iodide yield of at least about 75 % is obtained; and
wherein the aryl iodide has a purity of at least 90 %.

[c19] A triarylamine compound prepared by:

reacting an aryl halide compound with a metal iodide, a metal catalyst and a catalyst coordinating ligand in at least one solvent to provide an aryl iodide;
purifying the aryl iodide;
reacting the aryl iodide with a diarylamine in the presence of potassium hydroxide and a copper catalyst; and
purifying the triarylamine compound;
wherein the solvent is heated to reflux during the reacting the aryl halide compound; wherein an aryl iodide yield of at least about 75 % is obtained; wherein the aryl iodide has a purity of at least 90 %; and
wherein reacting the aryl iodide with a diarylamine is conducted under inert atmosphere.

[c20] A photoconductive imaging member comprising:

a charge transport layer;
wherein the charge transport layer comprises at least

one triarylamine prepared by
reacting an aryl halide compound with a metal iodide, a metal catalyst and a catalyst coordinating ligand in at least one solvent to provide an aryl iodide;
purifying the aryl iodide;
reacting the aryl iodide with a diarylamine in the presence of potassium hydroxide and a copper catalyst; and
purifying the triarylamine compound;
wherein the at least one solvent is heated to reflux during the reacting the aryl halide compound;
wherein an aryl iodide yield of at least about 75 % is obtained; wherein the aryl iodide has a purity of at least 90 %; and wherein reacting the aryl iodide with the diarylamine is conducted under inert atmosphere.